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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,066	06/15/2005	Kenji Okishiro	1113.45152X00	4257
20457 7590 03/05/2009 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873				
EXAMINER				
STONE, ROBERT M				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,066

Applicant(s)

OKISHIRO ET AL.

Examiner

Robert M. Stone

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 7, 8 and 11-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9 is/are rejected.
- 7) ☒ Claim(s) 5, 6 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06/15/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-6 and 9-11 drawn to Species II-Fig. 2 in the reply filed on 26 November 2008 is acknowledged. However, claim 11 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention having more than one kind of tube. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

2. Figures 19-22 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The phrase "substantially equal to" in claim 1 is relative which renders the claim indefinite. The phrase "substantially equal to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by *Hirakata* (US 2002/0036608).

As to **claim 1**, *Hirakata* discloses a liquid crystal display (title) comprising:
a light source made of a plurality of light emitting tubes (backlight system for the LCD panel contains multiple fluorescent lighting tubes and/or cold-cathode tubes [0005 and 0226]; Fig. 31) each having one or more kinds of phosphors (each fluorescent lamp contains multiple phosphors [0192]), and having a turned-on state and a turned-off state within one frame (turned on and off in one period [0006, 0011 and 0148]; Fig. 11a, c, and d); and

a liquid crystal panel for adjusting the amount of light transmitted from said light source (driving circuitry of Fig. 1 is used to control the amount of light emitted from the tubes while the LCD panel itself is driven by the image data in order to twist/untwist the liquid crystal molecules to adjust the amount/color of light seen by the user [0068]);

wherein a luminance factor area of light from each of said phosphors or a change in luminance factor per time of said light is substantially equal to that of light from any other phosphor in at least one of a luminance rise time when said light source changes from said turned-off state to said turned-on state and a luminance fall time when said light source changes from said turned-on state to said turned-off state (by adjusting the current used to drive the backlight tubes of the display, the rise and fall times of the brightness/luminance curve is manipulated decreasing the luminance factor area under the rise and fall curves by increasing the current supplied to the tube. As shown in Fig. 18b-e, increasing the current shrinks the period of rise and fall times of the backlight brightness. Since this backlight brightness measurement is taken as a whole, however includes multiple colored phosphors [00192], it is understood that shrinking these waveforms shrinks the rise and fall times of each phosphor making them substantially equal. Further, there is no mention of any phosphor extremes that might attribute to longer rise/fall times than those illustrated; Fig. 10, 11d, and 18b-e).

As to **claim 2**, *Hirakata* discloses wherein said light source is made of light emitting tubes of one kind (fluorescent lamps [0011] of cold-cathode tubes [0021 and 0062]), and each of said light emitting tubes is a multicolor light emitting tube having three or more kinds of phosphors (using multiple phosphors red/green/blue [0192]).

As to **claim 3**, *Hirakata* discloses wherein luminance of said phosphors is controlled by a current value of a current applied to each of said light emitting tubes (adjusts the current value of the light emitting tube driving current in order to control the brightness/luminance of the display [0022]; Fig. 11c).

As to **claim 4**, *Hirakata* discloses wherein at the beginning of said luminance rise time, said current value of said current applied to said light emitting tube is a current value I_2 (at the beginning of the rise of the brightness shown in Fig. 11d, the current being supplied to the backlight lamps is I_1 [0022]; Fig. 11c) not smaller than a current value I_1 (after current value I_1 is supplied the backlight current is dropped to current I_2 [0022]) necessary for said phosphors to emit light with predetermined luminance in one frame (the driving current is that necessary to acquire the backlight brightness waveform as shown in Fig. 11d).

As to **claim 9**, *Hirakata* discloses wherein a current value of a current applied to each of said light emitting tubes is attenuated stepwise in said luminance fall time (backlight driving current steps down from current I_1 to current I_2 [0022]; Fig. 11c).

Allowable Subject Matter

7. Claims 5-6 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

a. As to claim 5, *Hirakata* does not disclose the timing of the application of currents according to phosphor response time as specified in claimed Expression

1.

b. As to claim 10, *Hirakata* discloses a single step down from current I1 to current I2 in a period where the step width is shorter than the luminance fall response time of the a slow luminance response phosphor, however fails to disclose where the time width of the step is longer than the luminance fall response time of a fast luminance response phosphor.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. *Kumamoto* (US 7,106,294) discloses an LCD panel with backlight control used to control the fall/afterglow time of the phosphors of the backlight tubes in order to make them substantially equal.

- b. *Royce* (US 3,623,994) discloses the manipulation of phosphor elements in a cathode tube making the decay/fall times of the brightness/luminance of the phosphors substantially equal.
- c. *Yukawa* (US 4,616,161) discloses the manipulation of multiple colored phosphors within a cathode tube by varying the current used to drive the light.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Stone whose telephone number is (571)270-5310. The examiner can normally be reached on Monday-Friday 9 A.M. - 4:30 P.M. E.S.T. (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh D. Nguyen can be reached on (571)272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert M Stone/
Examiner, Art Unit 2629

/CHANH NGUYEN/
Supervisory Patent Examiner, Art
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